

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
29 July 2004 (29.07.2004)

PCT

(10) International Publication Number  
WO 2004/063413 A1

(51) International Patent Classification<sup>7</sup>: C22F 1/18,  
G21C 3/07

(21) International Application Number:  
PCT/SE2004/000003

(22) International Filing Date: 7 January 2004 (07.01.2004)

(25) Filing Language: Swedish

(26) Publication Language: English

(30) Priority Data:  
0300015-5 8 January 2003 (08.01.2003) SE

(71) Applicant (for all designated States except US): WESTINGHOUSE ELECTRIC SWEDEN AB [SE/SE]; S-721 63 Västerås (SE).

(72) Inventor; and

(75) Inventor/Applicant (for US only): DAHLBÄCK, Mats [SE/SE]; Mangelgatan 13, S-724 76 Västerås (SE).

(74) Agents: BERGLUND, Stefan et al.; Bjerkéns Patentbyrå KB, Östermalmsg. 58, S-114 50 Stockholm (SE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

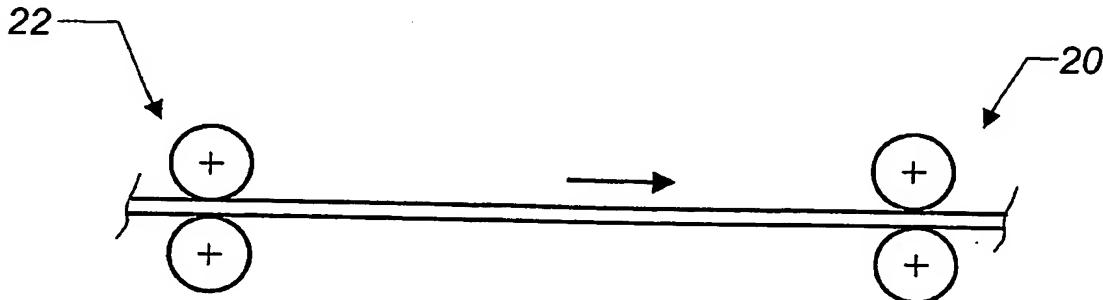
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD, USE AND DEVICE RELATING TO NUCLEAR LIGHT WATER REACTORS



(57) Abstract: The invention concerns a method of producing and treating a sheet suited to be used as a component or as a part of a component (2, 12, 14, 16) in a fuel assembly for a nuclear light water reactor, which method comprises the following steps: a) producing a sheet of a suitable Zr-based alloy by forging, hot rolling and cold rolling in a suitable number of steps, b) carrying out an  $\alpha$ + $\beta$  quenching or a  $\beta$  quenching of the sheet when the sheet has been produced to a thickness which is equal to or almost equal to the final thickness of the finished sheet, c) heat treatment of the sheet in the  $\alpha$ -phase temperature range of said alloy, wherein a stretching of the sheet is carried out during the heat treatment according to step c). The invention also concerns a use of a sheet that is produced and treated according to this method, and to methods and fuel assemblies of which said sheet forms a part.